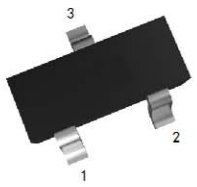
MMBTA13/14

SOT—23



1: Base
2: Emitter
3: Collector

FEATURES

Power dissipation

P_{CM} : 0.3W (Tamb=25℃)

Collector current

I_{CM}: 0.3A

Collector-base voltage

$V_{(BR)CBO}$: 30V

Operating and storage junction temperature range

T_J, T_{stg}: -55℃ to +150

ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions		MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C= 100 μA, I_E=0		30		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C= 100uA, I_B=0		30		V
Collector-emitter breakdown voltage	$V_{(BR)EBO}$	I_E= 100 μA, I_c=0		10		V
Collector cut-off current	I_{CBO}	V_{CB}=30 V, I_E=0			0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}= 10V, I_C=0			0.1	μA
DC current gain	$h_{FE(1)}$ *	V_{CE}=5V, I_C= 10mA	MMBTA13	5000		
			MMBTA14	10000		
	$h_{FE(2)}$ *	V_{CE}=5V, I_C= 100mA	MMBTA13	10000		
			MMBTA14	20000		
Collector-emitter saturation voltage	$V_{CE\ (sat)}$ *	I_C=100 mA, I_B=0.1mA			1.5	V
Base-emitter voltage	V_{BE} *	V_{CE}=5V, I_C= 100mA			2.0	V
Transition frequency	f_T	V_{CE}=5V, I_C= 10mA **f**=100MHz		125		MHz

* Pulse Test : pulse width ≤300 μs, duty cycle≤2%。

Marking : MMBTA13:1M; MMBTA14: 1N

Typical Characteristics

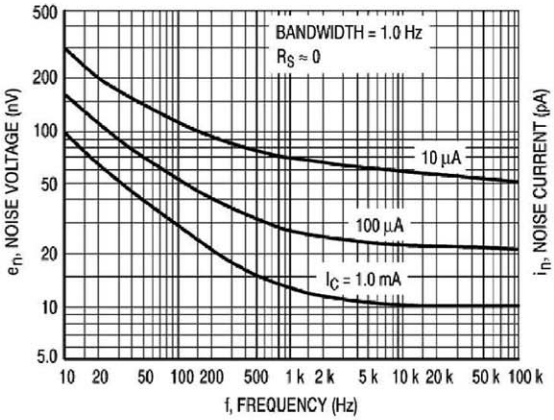


Figure 2. Noise Voltage

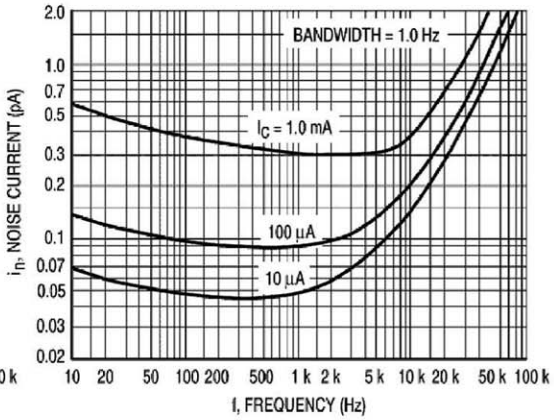


Figure 3. Noise Current

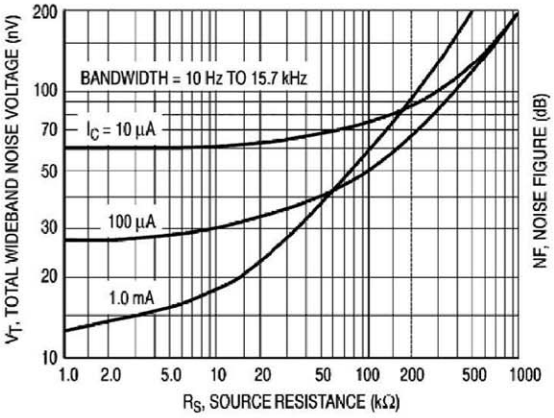


Figure 4. Total Wideband Noise Voltage

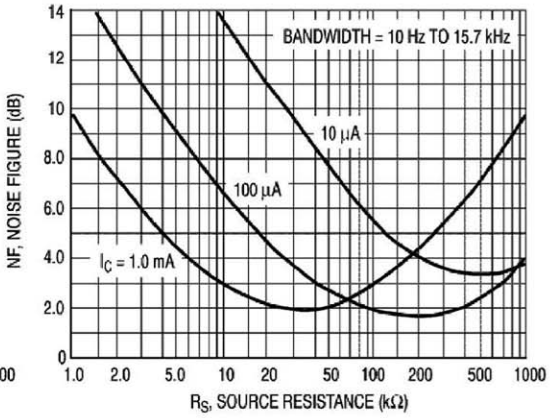


Figure 5. Wideband Noise Figure

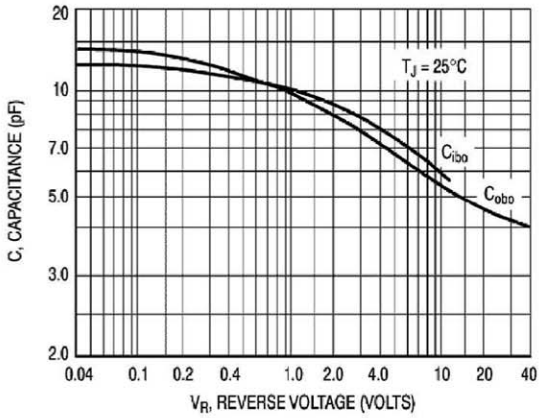


Figure 6. Capacitance

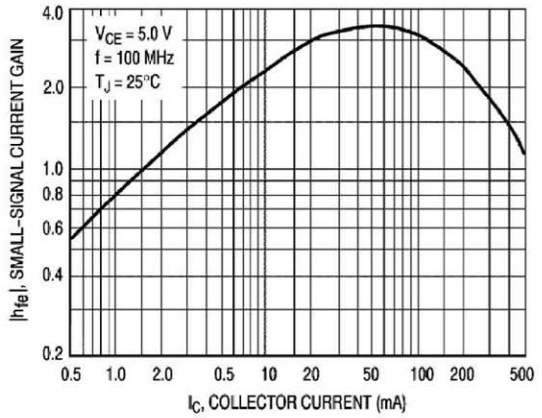


Figure 7. High Frequency Current Gain

Typical Characteristics

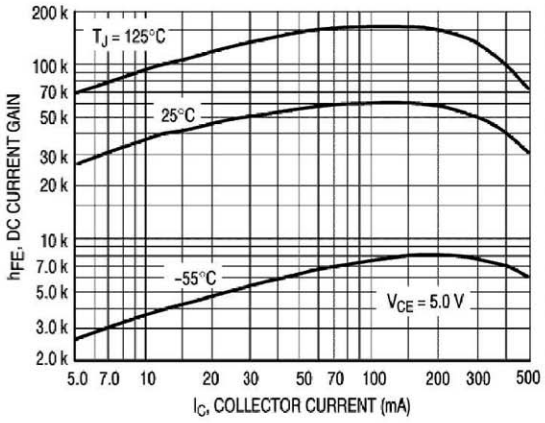


Figure 8. DC Current Gain

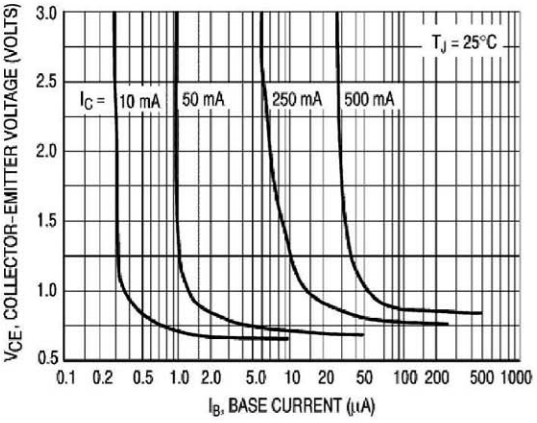


Figure 9. Collector Saturation Region

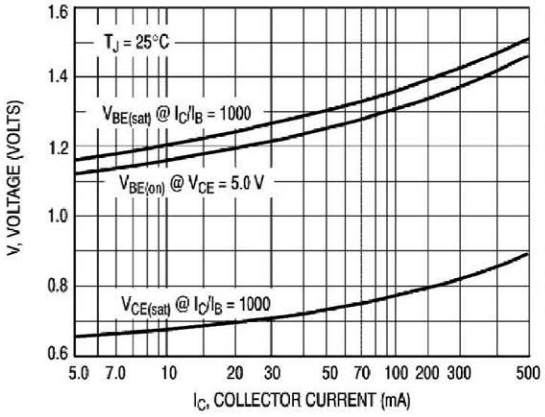


Figure 10. "On" Voltages

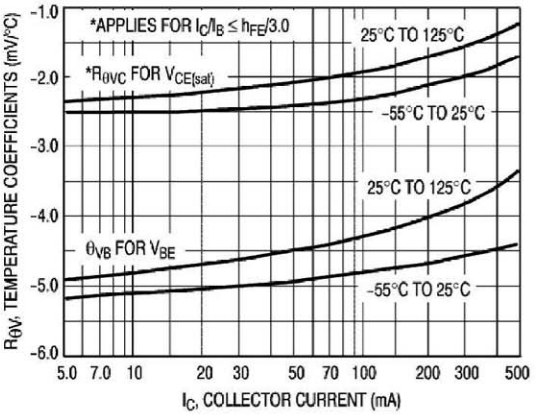


Figure 11. Temperature Coefficients

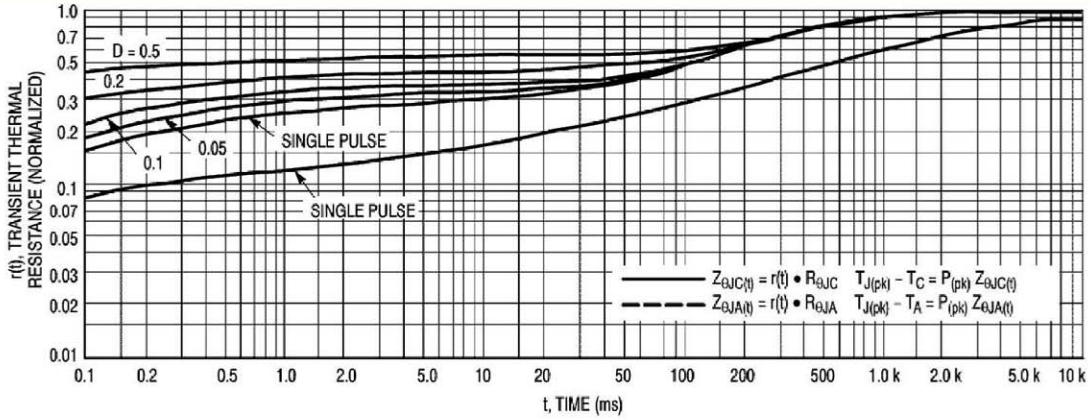
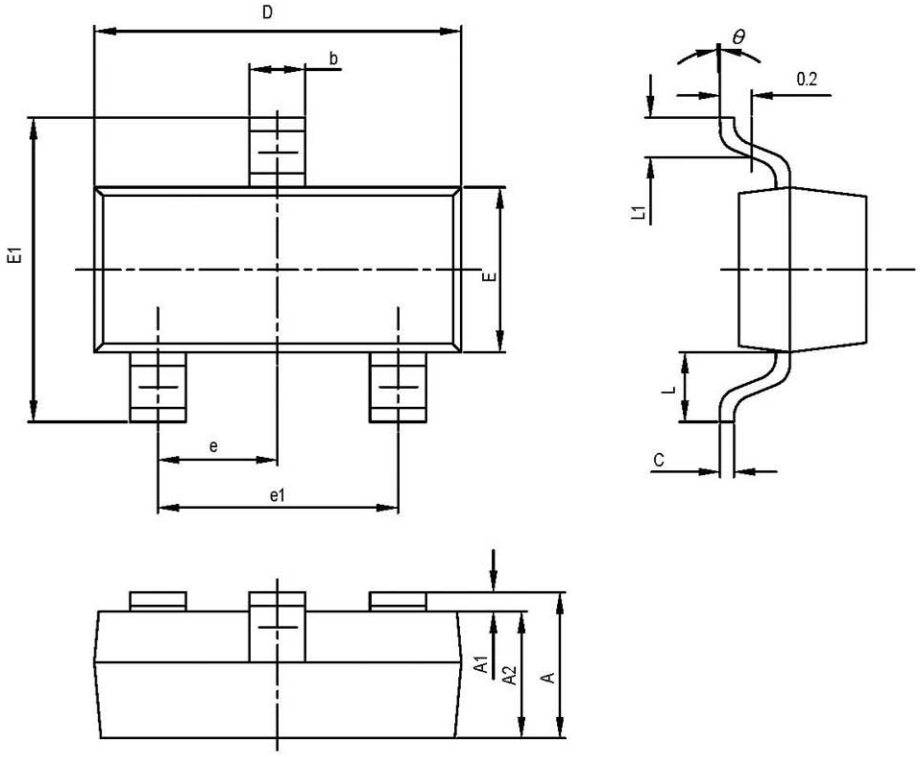


Figure 12. Thermal Response

SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TPY		0.037TPY	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8